REMARKS

Reconsideration and withdrawal of the rejection and the allowance of all claims now pending in the above-identified patent application (i.e., Claims 8-14) are respectfully requested in view of the foregoing amendments and the following remarks.

At the outset, it should be recalled that the present invention provides an electrostatic corrector for eliminating the chromatic aberration of particle lenses, in which the corrector has a straight optical axis and an electrostatic quadrupole for allocating to the objective lens. Two corrector pieces are positioned behind the quadrupole, along the optical axis in the direction of the radiation beam. Each corrector piece consists of three electrical quadrupole fields with an overlying circular lens field. The quadrupole fields, however, are rotated 90° about the optical axis in relation to each other. This arrangement is adjusted so that the astigmatic first image of one sectional view lies in one corrector piece and the astigmatic first image perpendicular thereto, of the other sectional view, lies in the other corrector piece - which achieves the effective result of the present invention - with another electrostatic quadrupole being located on the output side of the corrector device.

As will be explained in greater detail hereinafter, nowhere in the prior art is such a novel and efficient

electrostatic corrector for eliminating the chromatic aberration of particle lenses, which includes two corrector pieces each having three symmetrical quadrupole fields, either disclosed or suggested.

By the present amendments, Applicants have amended independent Claim 8 (and Claims 9-14 via dependency) to recite that each corrector piece of the claimed invention "consist[s] of" three electrical quadrupole fields. More particularly, Claim 8 has been amended to substitute --consisting of-- for "having" for the purpose of limiting each corrector piece to three quadrupoles fields, as discussed above and described in greater detail in Applicants' Specification.

It is proper, as a matter of law and under U.S. claim practice, to limit a particular element in the body of a claim with the phrase "consisting of" (or similar "closed" language) without otherwise closing the remainder of the claim, rewritten in "open" claim form by using the transitional term "comprising." *See*, *Mannessman Demag Corp. v. Engineered Metal Products Co., Inc.*, 793 F.2d 1279, 230 USPQ 45, 46 (Fed. Cir. 1986) ("The court correctly observed that the phrase 'consisting of' appears in clause (a), not the preamble of the claim, and thus limits only the element set forth in clause (a). The court correctly declined to read this usage of 'consisting of' as excluding all other elements from the claim as a whole.").

In Applicants' claims, as now amended herein, the use of three quadrupole fields for each of the corrector pieces has now been so restricted by use of the phrase "consisting of," however, the remaining elements of Applicants' claims remain "open." Additionally, Applicants' claims also remain open to "unspecified" elements not inconsistent with restriction of the corrector pieces (5, 6) to solely three quadrupole fields.

Applicants have also amended Claim 13, line 4, to correct an obvious typographical error noted by the Examiner.

In the first Action, the Examiner also formally rejected Claim 8 as being indefinite, pursuant to 35 U.S.C. §112, second paragraph, but did not specify any grounds for the possible indefiniteness of Claim 8. Inasmuch as no issue of indefiniteness is apparent to Applicants' attorney, it is requested that the Examiner specify any ground for an indefiniteness rejection of Applicants' claims which may exist.

Applicants have also amended the drawing figure for the application, as well as the Specification, in order to address the Examiner's objections pertaining to the drawing and disclosure. Specifically, an amended ("replacement") drawing accompanies the instant Response, which includes reference character "Z_M" for designating the center plane of the corrector pieces (5, 6) with the optical axis of the corrector (3) being designated by reference letter "Z."

In the first Office Action, the Examiner had objected to the drawing figures, pursuant to 37 C.F.R. §1.83(a), on the ground that the originally-filed drawing figures failed to include reference character "Z_M," which is referred to at Page 11, lines 22-27, of Applicants' Specification.

The Examiner also objected to the drawing figure originally filed, pursuant to 37 C.F.R. §1.84(p)(5), on the ground that reference characters 6a, 6b, 6c and 8 were included in the drawing figure, but not mentioned in the textual disclosure. The Specification has, accordingly, been amended at Pages 10-12 to provide the required description of the foregoing reference characters noted in the Examiner's objection.

Finally, the Examiner also objected to the drawing (and implicitly, the Specification) on the ground that "objective lens (4)," recited at Page 11, line 7, appeared to be in error. Upon reviewing the text, Applicants have amended this phrase to --objective lens (2)--, which appeared to be what was originally intended by Applicants.

In view of the foregoing amendments to the Specification and the accompanying "replacement sheet" for the drawing figure of record, Applicants respectfully contend that the Examiner's objections to the drawing and the textual Specification have been overcome and should now be appropriately withdrawn.

Turning now, in detail, to an analysis of the Examiner's prior art rejection of Applicants' claims, in the first Office Action the Examiner has rejected Claims 8-14 as being anticipated, pursuant to 35 U.S.C. §102(e), by Henstra et al., U.S. Patent No. 6,184,975, on the contention that Henstra et al. discloses an electrostatic corrector for eliminating chromatic aberration of particle lenses having a straight optical axis and an electrostatic quadrupole for allocation to an objective lens, which includes two symmetrical corrector pieces positioned behind the electrostatic quadrupole and along the straight optical axis in the direction of radiation, upon which it is contended that presently claimed invention is "readable."

In reply to the Examiner's anticipation rejection applying Henstra et al., the applied citation discloses a corrector device which two correction elements (34, 40), each having <u>five</u> quadrupole fields, that could be used as cylinder lenses. Accordingly, Henstra et al. teaches a corrector apparatus in which quadrupole and cylinder lenses are arranged on a straight optical axis, and along this axis the particle beam (*i.e.*, electron beam) is propagating. FIG. 4 of Henstra et al. illustrates how to construct and shape the quadrupole lens, which is well-known to the state of the art and is not relevant to the concept of the presently-claimed invention.

The corrector apparatus disclosed by Henstra et al. differs significantly from Applicants' present invention in that the lenses (quadrupole and cylinder) are positioned coaxially and centrally on the optical axis. Consequently, the deflection of the particle beam is limited by the boring in the quadrupole lens. It therefore becomes physically impossible with the corrector apparatus taught in Henstra et al. to deflect the optical beam beyond the border of the boring and in the direction away from the optical axis. Stated differently, the particle beam in Henstra et al. could not largely be displaced, in contrast to the presently-claimed invention. The boring of the fixed quadrupole in the Henstra et al. corrector device is limiting the displacement.

Further, the corrector elements of the corrector in Henstra et al. "are provided with at least five layers of electrodes . . . which produce quadrupole fields." (Henstra et al., Abstract at lines 11-15; *see*, *also* Col. 12, lines 28-33) The corrector elements of Henstra et al. therefore differ structurally from those of the present invention, as now claimed, in which each of the two corrector pieces (5, 6) consist of three quadrupole fields, which is both simpler in construction and accomplishes the intended correction for eliminating the chromatic aberration of particle lenses.

In light of the foregoing, it is respectfully submitted that the presently claimed invention for an electrostatic

corrector is constructed differently from that disclosed and suggested by Henstra et al. - which expressly teaches the use of "at least" five quadrupole fields for each corrector piece - with the claimed invention being of a simpler construction and contended to be more effective for its intended purpose.

Thus, withdrawal of the Examiner's 35 U.S.C. §102(e) anticipation rejection of Claims 8-14, as presented in the first Office Action, is respectfully requested.

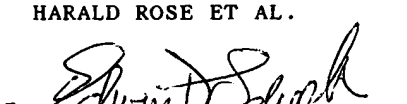
Concerning, finally, the remaining references made of record by the Examiner, but not applied in any rejection of Applicants' claims, such additional art references have been carefully considered, but are not believed to adversely affect the patentability of the present invention, as claimed.

In light of the foregoing, it is respectfully contended that all claims now pending in the above-identified patent application (i.e., Claims 8-14) recite a novel and efficient electrostatic corrector for eliminating the chromatic aberration of particle lenses, which includes two corrector pieces each having three symmetrical quadrupole fields, which is patentably distinguishable over the prior art. Accordingly, withdrawal of the outstanding objections and rejection

and the allowance of all claims now pending are respectfully requested and earnestly solicited.

Respectfully submitted,

HARALD ROSE ET AL.

By 

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February 20, 2004

Enc.: 1. Petition for Two-Month Extension of time;

2. Check for $210.00 (Three-Month Extension Fee); and,

3. "Replacement Sheet" containing one drawing figure.

The Commissioner is hereby authorized to charge the Deposit Account of Applicants' Attorney, Account No. 19-0450, for any additional fees which may be due in connection with the prosecution of the present application, but which have not otherwise been provided for.